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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/665,304	09/18/2003	Madapusi K. Keshavan	49524/CM/M277	5445
23363 7590 02/25/2008 CHRISTIE, PARKER & HALE, LLP PO BOX 7068 PASADENA, CA 91109-7068				
EXAMINER				
MAYES, MELVIN C				
ART UNIT		PAPER NUMBER		
1791				
MAIL DATE		DELIVERY MODE		
02/25/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/665,304

Applicant(s)

KESHAVAN ET AL.

Examiner

Melvin C. Mayes

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 November 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5-12, 25-39 and 50-58 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-3, 5-12, 25-39 and 50-54 is/are allowed.
- 6) ☒ Claim(s) 55-58 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

(1)

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(c), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(c) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 5, 2007 has been entered.

Claim Rejections - 35 USC § 112

(2)

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

(3)

Claims 57-58 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 57 claims density “of about 40% to about 70%” however it is not clear if this is in relation to full density of the substrate. The claim is not clear.

Claim Rejections - 35 USC § 103

(4)

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

(5)

Claims 55-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boyce 6,845,828.

Boyce disclose a method of making a cutting insert comprising:

providing a mixture of diamond particles and tungsten carbide powder in a liquid vehicle (thus an ultra hard diamond material solid which is porous and not fully densified);

providing a green insert comprised of tungsten carbide pellets presintered at a low temperature sufficient to permit handling of the green insert (thus a substrate which has been exposed to a thermal condition for producing partial densification to density less than 100% of full density);

applying the mixture to the cutting surface of the insert; and

subjecting to high-temperature, high pressure anneal to produce a fully densified insert having a well-bonded diamond-containing surface layer (col. 3, line 51 – col. 4, line 28).

By providing the green insert formed by presintering at a low temperature, the green insert obviously has a density for providing a desired level of constraint to the diamond material solid during sintering, as claimed. As disclosed by Applicant, a reduction in the shrinkage constraint (the desired level) of the ultra hard material layer during sintering is achieved by providing a substrate having at least a portion of density in the range of 40-99% of full density or

of 1-30% porosity. Boyce discloses a green insert presintered at low temperature to permit handling which is an substrate having a density which will obviously reduce shrinkage constraint of the ultra hard diamond material during the sintering process and thus provide the desired level of constraint.

With respect to presintering the green insert to a density in the range of about 40% to about 70%, as claimed in Claim 57, Boyce discloses presintering the insert substrate at a low temperature sufficient to permit handling of the green insert. It would have been obvious to one of ordinary skill in the art that presintering the insert to a density as low as 40% of full density would be sufficient to provide a green insert which can be handled. As disclosed by Applicant, a reduction in the shrinkage constraint (the desired level) of the ultra hard material layer during sintering is achieved by providing a substrate of at least a portion which has a density in the range of 40-99% of full density. Applicant has not set forth any unexpected results of the density range of 40-70% compared to the disclosed range of 40-99%.

Allowable Subject Matter

(6)

Claims 1-3, 5-12, 25-39, 50-54 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record does not disclose or suggest the method of manufacturing a cutting element including selecting an ultra hard material having a volume and substrate having a volume and of at least portion of less than 100% of full density wherein selecting the substrate includes selecting the density in response to the volumes of the substrate and ultra hard material

for providing a desired level of constraint during sintering, as claimed in Claims 1, 52 and 53, or selecting a substrate which has been exposed to a thermal condition for producing partial densification so that a first portion has density less than 100% of full density and second portion of density different from the first density wherein selecting the substrate includes selecting the densities of the two portions for providing a desired level of constraint to ultra hard diamond material during sintering, as claimed in Claim 25.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melvin C. Mayes whose telephone number is 571-272-1234. The examiner can normally be reached on Mon-Fri 7:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Phillip C. Tucker can be reached on 571-272-1095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

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like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Melvin C. Mayes
Primary Examiner
Art Unit 1791

MCM
February 15, 2008

/Melvin C. Mayes/
Primary Examiner, Art Unit 1791